

and is it not their function to survive these unfavourable conditions and thus serve, not only for the preservation of the individual, but also for propagation?

I think we may answer all these questions in the affirmative, and regard these fragments as formations analogous to what is known to us from Prof. Allman's\* observations on the spontaneous fission of *Schizocladium ramosum* and *Corymormpha nutans*, as a means of reproduction by fission. In *Schizocladium ramosum* the upper portion of a branch becomes detached as a little cylinder, just in the same way as in *Obelia flabellata*; and then, after having ruptured the perisarc, this free portion departs from the colony, forms the perisarc again, and becomes transformed into an individual.

[To be continued.]

## PROCEEDINGS OF LEARNED SOCIETIES.

### GEOLOGICAL SOCIETY.

April 11th, 1877.—Prof. P. Martin Duncan, M.B., F.R.S.,  
President, in the Chair.

The following communications were read:—

2. "The Bone-caves of Creswell Crags."—Third Paper. By the Rev. J. Magens Mello, M.A., F.G.S.

In this paper the author gave an account of the continued exploration of these caves, and of the completion of the examination of the Robin-Hood Cave, noticed in his previous communications. Five deposits could be distinguished in the Robin-Hood Cave, namely, when all present:—

1. Stalagmite, 2 ft.
2. Breccia, with bones and flint implements, 1 ft. 6 in.
3. Cave-earth, with bones and implements, 1 ft. 9 in.
4. Mottled bed, with bones and implements, 2 ft.
5. Red sand, with bones and quartzite implements, 3 ft.

Variations both in thickness and in character occur in different parts of the cave. The surface-soil yielded traces of Romano-British occupation, such as enamelled bronze fibulae, fragments of pottery, &c. The most important discoveries were made in the cave-earth; and chief among these was a fragment of bone, having on it a well executed outline of the head and neck of a horse, the first recorded discovery of any such work of art in this country. The cave-earth also yielded a canine of *Machairodus latidens*, hitherto obtained in England only in Kent's Hole. Numerous remains of the Pleistocene Mammalia already recorded were found, together with a great

\* Allman, "Reproduction by Fission in Hydroids," Brit. Assoc. Report, 1870; and Quart. Journ. Micr. Sci. 1871, pl. ii. figs. 2, 3.

number of implements of quartzite and flint, and two of clay-iron-stone. The quartzite implements were most abundant in the lowest bed.

In the other cave examined, the Church Hole, which consists principally of a long fissure in the south side of the crags opposite Robin Hood's Cave, the succession of beds was nearly the same as in the latter. In the surface-soil near its mouth a fine bronze brooch was found. Some of the implements met with in the cave-earth were of great interest, and several of them were of bone. Bones of Rhinoceros were found in great abundance; and those of the Mammoth, Horse, &c. were also plentiful.

As the result of the exploration of these caverns, the author said it is evident that during the Pleistocene period Derbyshire and the adjoining counties were inhabited by a very numerous and diversified fauna, the vast forests and pastures which extended far to the east and south offering a congenial home to the Mammoth, the Woolly Rhinoceros, the Hippopotamus, the Irish Elk, the Reindeer, the Bison, and the Horse, whilst among them the Hyæna, the Glutton, the Bear, the Lion, the Wolf, the Fox, and the great sabre-toothed *Machairodus* roamed in search of prey; and that with these and other animals man lived and waged a more or less precarious struggle, amidst the vicissitudes of a varying climate, sheltering himself in the numerous caves of the district, which were already the haunts of the hyæna and its companions.

3. "On the Mammal-fauna of the Caves of Creswell Crags." By Prof. W. Boyd Dawkins, M.A., F.R.S., F.G.S.

In this paper the author gave an account of the remains found in the caves explored by the Rev. J. M. Mello. He stated that the recent explorations had proved that the Robin-Hood Cave was inhabited by Hyænas, not only during the deposition of the cave-earth and breccia, but also during that of the red-sand and clay underlying it, which had also furnished traces of the existence of man. An immense number of specimens were collected in this cavern, including bones of the following animals:—*Machairodus latidens*, Cave-Lion, Wild Cat, Leopard, Spotted Hyæna\*, Fox\*, Wolf, Bear, Reindeer\*, Irish Elk\*, Bison\*, Horse\*, Woolly Rhinoceros\*, Mammoth\*, and Hare\*—those marked with an \* occurring in the red sand and clay as well as in the cave-earth, although much more sparingly. The traces of man consisted of more than 1000 implements; and, as before, those made of quartzite were generally found in the lower strata. The most important indication of human handiwork was the outline of the head and fore quarters of a horse, engraved upon a fragment of the rib of some animal. Among the animal remains the most interesting discovery was that of a canine of *Machairodus latidens*; it consisted of the sabre-shaped crown only, which appeared to have been purposely broken away from the root.

The superficial layer of earth in the cave contained remains be-

longing to the historic and prehistoric ages, including a Romano-British enamelled bronze brooch, of the same pattern as one found in the Victoria Cave, fragments of pottery, human bones and teeth, and bones of both wild and domestic animals.

The distribution of the remains found in the Church Hole Cave agreed generally with that above described; traces of human occupation and remains of the Hyæna occurred both in the cave-earth and in the red sand and clay. The bones found indicated the following animals:—Lion, Polceat, Hyæna, Fox, Wolf, Bear, Reindeer, Irish Elk, Bison, Horse, Woolly Rhinoceros, Mammoth, and Hare—all common to both the cave-deposits, except the Lion, which was found only in the cave-earth, and the Polceat, of which a single jaw occurred in the red sand. The latter contained a larger proportion of the remains than in the Robin-Hood Cave; but, as in the latter, the quartzite implements were more abundant in the lower strata of the deposits. Among the articles of human workmanship was a perfect and well-shaped bone needle. The superficial soil of the Church Hole Cave also contained articles of the historic and prehistoric age, including a bronze fibula, fragments of pottery (one mediæval), and bones of man and animals. From the presence of these objects in the surface-soil the author inferred that the caves of Creswell Crags, like those of Yorkshire and elsewhere, were used as places of refuge by the Brit-welsh during the conquest of the country by the English.

After noticing the conditions of the fossil bones found in the caves, the author proceeded to remark upon the general results of the explorations with regard to their Pleistocene fauna, and concluded that there is no evidence from these or other caves in this country to prove that their faunas are either pre- or interglacial, and that we have no proof of the existence of pre- or interglacial man in Britain.

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#### MISCELLANEOUS.

*On the Migrations and Metamorphoses of the Tapeworms of the Shrews.* By M. A. VILLOT.

DUJARDIN discovered and described several species of tapeworms inhabiting the intestines of the shrews: thus *Tænia scutigera* lives in *Sorex tetragonurus*; while the little *Sorex araneus* harbours three species, namely *T. scalaris*, *tiara*, and *pistillum*. Dujardin was acquainted with the various stages of the development of these species, except the place and manner of the passage from the proscœlex to the scolex, a gap in our knowledge of their history which M. Villot has filled up by the discovery that this change takes place in *Glomeris*, and that the cystic parasite described by him last year under the name of *Staphylocystis biliarius* represents this stage in the development of a species very near to *T. scutigera* and *T. scalaris*, which, moreover, are very closely allied. In these two species, according to M. Villot, the hooks are of the same form and dimen-